

REMARKS

Claims 1, 2, 5-8, 10-14 and 21-29 are pending in this application, claims 3, 4, 9, and 15-20 having been cancelled and claims 21-29 being newly added by the above amendment. Of these claims, claims 1, 7, 8, 10, 11, 16, 17 and 20 stand rejected under 35 USC §102(b) as being anticipated by Starz et al. and claims 2, 5, 6, 13 and 14 stand rejected under 35 USC §103(a) as being unpatentable over Starz et al. Further, claims 2, 6 and 12-14 stand rejected under 35 USC §103(a) as being unpatentable over Starz et al. in view of Swathirajan et al., and claims 5 and 12 stand rejected under 35 USC 103(a) as being unpatentable over Starz et al. in view of Grot et al. Also, claims 3, 4, 8, 9, 15, 18 and 19 stand rejected under 35 USC §112, second paragraph, as being indefinite for the reasons stated on pages 2 and 3 of the Office Action.

In view of the preceding amendments and the following remarks, these rejections are traversed, and reconsideration of this application is respectfully requested.

Claims 3, 4, 9, 15, 18 and 19 have been cancelled by the above amendment rendering most of the §112, second paragraph, rejection moot. Dependent claim 8 has been amended above to specifically state that the concentration of the ionomer in the catalyst ink is about one-half of the final concentration of the ionomer in the cathode side or the anode side of the MEA. Support for this can be found in paragraph [0027] of the specification where it states that the ink 18 includes a catalyst, solvent and half the ionomer concentration, and the final catalyst layer including the ionomer layer yields a total ionomer/carbon ratio that is twice the concentration of the ionomer in the catalyst. Thus, the added language specifically

states what is meant by half the ionomer concentration. It is therefore respectfully requested that the §112 rejection be withdrawn.

Independent claim 1 has been amended above to include the language previously found in dependent claim 9 with additional discussion. Particularly, independent claim 1 now states that the method includes clamping the membrane in a clamp to prevent membrane wrinkling as a result of the wetness of the catalyst ink on the membrane. Support for this can be found in paragraph [0024], where the reference numeral of the clamp has been changed to "32" because of a redundant number. A Replacement Drawing Sheet for figure 1 is included herewith.

Applicant submits that the clamp 32 clearly shows that the membrane 14 is held in place at an edge of the membrane 14 so that the catalyst ink 18 from the sprayer 16 can be deposited on the membrane 14. Concerning the §112, second paragraph, rejection of dependent claim 9, amended claim 1 specifically states that the membrane is in the clamp during the spraying of the catalyst ink and that the catalyst ink is sprayed on the membrane. One of ordinary skill in the art would readily recognize what type clamp would be needed for this purpose and how the membrane would be secured in the clamp without interfering with the spray. Therefore, Applicant submits amended independent claim 1 satisfies the requirements of §112, second paragraph, because it apprises one of ordinary skill in the art of the scope of the claim. MPEP 2173.02.

Applicant respectfully submits that the prior art of record does not teach such a clamp for this purpose, and therefore, independent claim 1 is not anticipated or made obvious by Starz et al. or any other reference of record.

Independent claim 13 has been amended above to state that the MEA is dried under the heat lamp as the catalyst ink is being sprayed over the several passes.

Applicant respectfully submits this provides a unique and novel technique for depositing the catalyst on the membrane as the deposition process can be better controlled because each sprayed layer of the catalyst ink on the membrane is dried as it is being deposited on the membrane.

As noted by the Examiner, Starz et al. teaches using a circulating air oven for drying the membrane. Applicant submits that such a circulating air oven would not be applicable for drying the membrane as multiple sprayed layers of the catalyst are deposited on the membrane. Further, Applicant submits that Starz et al. does not teach or suggest providing multiple spraying steps of the catalyst, as noted by the Examiner, and therefore does not teach or suggest depositing such layers of the catalyst that are being dried as they are deposited.

New independent claim 21 is dependent claim 8 written in independent form with the further discussion that the concentration of the ionomer in the catalyst ink is about one-half of the final concentration of the ionomer in the cathode side or the anode side of the MEA.

Applicant respectfully submits that Starz et al. does not teach or suggest spraying a catalyst ink onto the cathode or anode side of an MEA where the concentration of an ionomer in the ink is about half of the final ionomer concentration of the cathode or anode. Therefore, Applicant submits that Starz et al. cannot anticipate or make obvious new independent claim 21.

Applicant submits that U.S. Patent No. 6,277,513 issued to Swathirajan et al. does not teach or suggest a method for depositing a catalyst on the cathode or anode side of an MEA that includes providing multiple spraying steps of the catalyst while the catalyst is being dried or positioning the MEA in a clamp to prevent membrane wrinkling, or spraying a catalyst ink on the MEA where the concentration

of the ionomer in the ink is about half of the final concentration of the ionomer for the cathode or anode side of the MEA.

Applicant has carefully reviewed U.S. Patent No. 5,330,860 issued to Grot et al. and cannot find any of these teachings in that reference either.

In view of the preceding amendments and remarks, it is respectfully requested that the §102(e) and §103(a) rejections be withdrawn.

It is now believed that this application is in condition for allowance. If the Examiner believes that personal contact with Applicant's representative would expedite prosecution of this application, he is invited to call the undersigned at his convenience.

Applicant is filing concurrently herewith, a Power of Attorney to Prosecute Applications before the USPTO (appointing practitioners associated with the Customer No. 65798 Power of Attorney and changing the Correspondence Address as associated with Customer No. 65798 as identified below) along with a Statement under 37 CFR 3.73(b).

Respectfully submitted,

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